

# 27123

↑CUSTOMER NUMBER↑

Docket No. 1151-4153US2

## REMARKS

This is to provide a list of claims in response to the office action of November 6, 2006. The Legal Instrument Examiner objected to the list of claims wherein the canceled claims were bunched together. Now each and every claim is separately listed and identified even the canceled claims. The remainder of the response reiterates the response previously filed on October 27, 2006.

Claims 4, 15, 17, 18, 22-23 and 25 have been cancelled. Claims 3, 5, 6, 16, 22 and 24 have been amended to define A as an amino acid or the immunostimulatory invasin domain sequence, SEQ ID NO:13.. Support for the amendment is found in the originally filed claims and in the specification on page 18, line 10-25 and page 24, line 25- page 25, line 23. No new matter is entered hereby. Entry of the amendment is requested.

The claims now pending are claims 3, 5-13, 16 and 24.

## RESPONSE

The Examiner has required restriction of the claims to eight groups of overlapping claims as follows:

- I. Claim 3 drawn to a synthetic peptide comprising a helper T cell epitope, an IgE-CH3 domain antigen peptide and an immunostimulatory invasin domain, classified in class 424, subclass 185.1 and class 530, subclass 391.1.
- II. Claim 4, 7-13, and 24 drawn to a peptide conjugate comprising a helper T cell epitope, an IgE-CH3 domain antigen peptide classified in class 424, subclass 185.1 and class 530, subclass 391.1..
- III. Claim 5, 7-13,15-18 and 24-25, drawn to a peptide conjugate represented by the formula  $(A)_n-(\text{IgE-CH3 domain antigen})-(B)_o-(\text{Th})_m-X$  classified in class 424, subclass 185.1 and class 530, subclass 391.1..
- IV. Claim 5, 7-13,15-18 and 24-25, drawn to a peptide conjugate represented by the formula  $(A)_n-(\text{Th})_m-(B)_o (\text{IgE-CH3 domain antigen})-X$ , classified in class 424, subclass 185.1 and class 530, subclass 391.1.

- V. Claim 6-13,15-18 and 24-25, drawn to a peptide conjugate represented by the formula (IgE-CH3 domain antigen) -(B)<sub>o</sub>-(Th)<sub>m</sub>-(A)<sub>n</sub> X, classified in class 424, subclass 185.1 and class 530, subclass 391.1.
- VI. Claim 6-13,15-18 and 24-25, drawn to a peptide conjugate represented by the formula (Th)<sub>m</sub>--(B)<sub>o</sub>-(IgE-CH3 domain antigen)-(A)<sub>n</sub> X, classified in class 424, subclass 185.1 and class 530, subclass 391.1.
- VII. Claims 24-25, drawn to a peptide and a pharmaceutical composition comprising an immunologically effective amount of a peptide and a pharmaceutical carrier, classified in class 530, subclass 350.
- VIII. Claims 22-23, drawn to a polymer comprising a peptide, classified in class 530, subclass 402.

The requirement is traversed and reconsideration of the restriction requirement is requested in view of the amendment of the claims and for the reasons given below. However, in view of the rules, applicant is provisionally electing the invention of Group I, claim 3.

The Examiner contends that Group I-VIII are different products and because the polypeptide conjugates of Groups II-VI, the peptide of Group VII and the polymers of Group VIII all differ with respect to their structures, modes of action and physicochemical properties; therefore each product is patentably distinct.

Firstly, claims 4 and the claims dependent thereon and claims 22-23 are canceled and without prejudice. Thus, the restriction with respect to claims of Groups II and VIII are moot.

The requirement as applied to Groups I, III-VII is traversed for the following reasons:

Firstly, a single general inventive concept is presented by this application. The concept is that there is an epitope in IgE-CH3 domain which is useful when conjugated to a promiscuous Th epitope to generate antibodies against IgE for the treatment of allergies. The epitope is defined by SEQ ID NO:5. Analogues of SEQ ID NO:5 were

# 27123

↑CUSTOMER NUMBER↑

Docket No. 1151-4153US2

also presented. These are SEQ ID NO: 6, 7, 8 and 84. A comparison of the sequences for SEQ ID NOs: 5, 6, 7, 8 and 84 is presented below to show that they are analogues of each other.

<u>SEQ ID NO:5</u>	CGETYQSRVTHPHLPRALMRSTTKC
<u>SEQ ID NO:6</u>	CGETYYSRVTHPHLPKD <u>IVRSIAKC</u>
SEQ ID NO:7	CGEGYQSRVDHPHF <u>PKPIVRSITKC</u>
SEQ ID NO:8	CGYGYQSIVDRPDFPKPIVRSITLC
<u>SEQ ID NO:84</u>	CGETYKSTVSHPDLPREVVR <u>SIAC</u> KC

A further comparison of these sequences will show that they correspond with a part of IgE-CH3 that is modified from humans, dog, rat, mouse and horse. See Table 1 on page 67 of the specification. These five sequences are then respectively conjugated to a promiscuous Th epitope selected from the group consisting of SEQ ID NOs: 9-12, 60-82 and 89 disclosed and set forth on Tables 5 and 6. The conjugated product may further be conjugated with an invasin domain to further improve the immunoresponse, i.e. to increase the titer of the antibodies to IgE elicited for more effective treatment of allergies. Thus, the invention claimed and described is directed to a single general inventive concept.

The claims may define different products with different structures. However, that is not the proper basis for a restriction requirement. The Examiner contends that the different products have different modes of action and different physicochemical properties without any basis. The Claims of Groups I, III-VI are directed to synthetic peptides comprised of IgE-antigen peptides conjugated to Th, a T helper epitope, and an invasin domain with amino acid spacers. There is no evidence that the IgE-antigen domain when conjugated to a Th epitope and an invasin domain have any other modes of action or different physicochemical properties. Therefore, the contention that they are different inventions is not supported.

The Examiner pointed to the fact that "they have acquired a separate status in the art as shown by different classification and/or recognized divergent subject matter."

This statement is not supported in fact by the restriction of Groups I, III-VI based on the description of these groups. They are all in the same classes and subclasses: class 424, subclass 185.1 and class 530, subclass 391.1. Therefore, the contention is not supported.

Secondly, under the patent law, it is necessary to present examples of permutations of the claimed IgE-CH3 epitope to obtain proper scope of protection for the invention and to satisfy the enablement requirement under Section 112. If every permutation of a peptide sequence is regarded as a different invention, it would be wrong. Moreover, it would be overly burdensome for the Applicants to file 60 different applications for the different permutations that the Applicants have taught and described.

Thirdly, as presently framed, it is impossible for the Applicant to make an election. It is as if each of an alkane must be claimed separately as methane, ethane, propane, butane, etc. In the peptide area, the 20 amino acids are the building blocks of a peptide just like the elements, carbon, hydrogen, oxygen, nitrogen, etc. are the building blocks for compounds. Not every permutation in a compound defines a separate invention. Just like chemical compounds whose structures define functions, peptides define the biological functions. A B cell epitope when presented properly provoke the body to produce antibodies against attack by a specific antigen represented by the B cell epitope. A Th epitope presents a B-cell epitope from an antigen to B cells which are provoked to produce antibodies against the antigen. In the present case the B cell epitope is the IgE-CH3 antigen.

Since the peptides in its different permutations are shown to be effective to provide antibodies to IgE for the treatment of allergies, they are different embodiments of a single inventive concept. Applicants request withdrawal of the restriction requirement.

Applicants' attorney had called the Examiner to discuss the restriction requirement. The present application is a divisional application. In the parent case which issued as a patent, the prior Examiner indicated that if a showing is made that

**27123**

↑CUSTOMER NUMBER↑

Docket No. 1151-4153US2

SEQ ID NOs: 5-8 and 84 are analogues of each other, then the restriction requirement with at least to Groups I, III-VI should be withdrawn for the reasons stated above..

As for Group VII, claim 24 is directed to a pharmaceutical preparation comprising the synthetic peptide conjugates of claims 3, 5-13, 16 and should be examined together. The inventive concept is derived from the use of synthetic peptides comprising IgE-CH3 antigen peptides conjugated to Th epitopes and optionally to an immunostimulatory invasin domain, SEQ ID NO:13. No further search is necessary. Therefore, Group VII comprising only claim 24 should be examined together with claims 3, 5-13 and 16.

#### **SPECIES ELECTION**

The Examiner has also imposed a species election. Reconsideration is requested for the reasons stated above. SEQ ID NO:5, 6, 7, 8, and 84 have been shown to be analogues of the IgE-CH3 antigen peptide from humans, dog, mouse, rat and horse. The Applicant has shown that these peptides are effective when conjugated with a Th epitope and optionally an invasin domain to provide antibodies against IgE. The Examiner contends that because of their different structures, that there is different mode of action, and physicochemical properties without showing the basis of this statement. Whereas, Applicant has provided experimental data to show that they have similar modes of action and have similar physicochemical properties, therefore the species should be examined together. Moreover, the Examiner points to different expression. It is unclear what is meant by this statement. The claims are directed to peptides and not genes. Therefore, it is not clear what is meant by the term expression with respect to peptides.

Nevertheless, Applicant is electing SEQUENCE ID NO: 5, the human sequence pursuant to the species election to comply with the rules. Applicants wish to point out

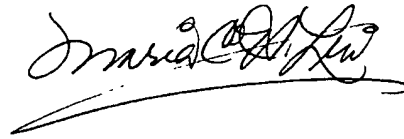
**27123**

↑CUSTOMER NUMBER↑

Docket No. 1151-4153US2

that this is a species election and should not prevent the examination of the claims reciting these peptides as different embodiments of the invention.

Respectfully submitted,



Dated: November 13, 2006

---

Maria C.H. Lin  
Registration No. 29,323

CORRESPONDENCE ADDRESS:  
MORGAN & FINNEGAN LLP  
3 World Financial Center  
New York, New York 10281-2101  
(212) 415--8700  
(212) 415-8701 Facsimile  
Direct Line: 212-415-8745  
Email: mclin@morganfinnegan.com